methylenedianile

a) in a glass or stainless steel matrass, provided with stirring means, reflux column, heating and cooling systems, the following materials are added: methylenedianiline, methanol and **methyl bromopropionate**."

It is also noted on page 5 that

"Hereinafter Stage 2 is described, in which the halogen "chlorine"is substituted by "bromine"from the methyl propionate that gives better results in the removal of residual by-products."

Methyl bromoproprionate is a methyl haloester reactant. Combined with the reference to bromided ester, there is more than enough support to use the term "methyl haloester," particularly since the line on page 5 suggests that a chlorine methyl haloester could be used in place of a bromided ester, albeit with results that are not as good as those obtained by the use of the bromided compounds.

As to the time of refluxing, claim 9 has been amended. Support for claim 9 is found on page 5.

Support for claim 6 is found on pages 3-11.

Support for claim 7 is found on page 5, line 2, wherein it is stated that bromine methyl propionate gives better results than chlorine methyl proprionate. This line does not rule out the use of chlorine methyl proprionate.

Support for claim 8 is found on page 5, stage A, paragraph a.

Support for Amended claim 9 (refluxing for 19 hours) is found on page 5, Stage A, paragraph c.

Support for claims 10 and 11 is found on page 5, Stage A, paragraph b.

Support for amended claim 12 is found on page 6, Stage B, paragraph j.

Support for claim 13 is found on page 5, Stage A, paragraph e.

Support for claim 14 is found on page 6, Stage B, paragraph j.

Support for claim 15 is found on page 6, Stage B, paragraph k.

Support for claim 16, is found on page 7, line 3.

Support for claim 17, is found on page 6, Stage B, paragraph j.

Support for claim 19, is found on page 6,, Stage B, paragraph k.

Support for claim 20 is found on page 7.

For claim 21, methanol is used in the application and is found on page Stage A, paragraph A.

However, original claim 1 specifically reacts a mixture of methyl bromoproprionate and methylenedianiline in a C_1 - C_4 aliphatic solvent. This information can be incorporated into the main section of the specification, as the original claim is part of the specification.

Support for claim 22 is found on page 5, stage A, paragraph b.

Support for claim 23 corresponds to the sterioisomer described under stage B.

Support for claim 24 is found on page6, the last paragraph of Stage A.

Support for claim 25 is found on pages 7 and 8.

The Office Action also notes that there are numerous inconsistencies and errors within the specification. The examiner notes that on page 3, applicants refer to the use of aromatic isocyante; however, only the aliphatic diisocyanate, methylene diisocyanate, is exemplified. Further, applicants

incorrectly refer to methylene diisocyanate as being an aromatic isocyanate in claim 12.

Applicants note that the application teaches the use of either an aromatic or a methylene diisocyanate may be used. The Applicant does not have to give an example of use for each proposed chemical listed. For the purposes of simplicity, however, the claims have been amended so that they are directed to a methylene isocyanate.

The terms ethyl methyl diglycinate, methyl chloro propionate, methylene dianiline and triethylamine do not have to be written out in their chemical formulas.

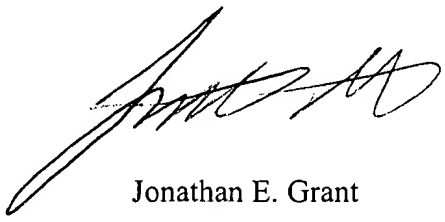
The Office Action also states that formula I in claim 6 and formula II in claim 23 are incorrect.

In response, applicant notes that claim 23 has been corrected. Applicant has filled in the missing lines for formula I in claim 6. This is the correct formula. If this is not the correct formula, applicant respectfully requests the Office Action to give reasons why it is believed that the formula is not correct, and what the Office Action believes is the correct formula.

The Office Action also notes that the terms polyglycolyl urea and polyglycolyl urea hydantoin resin are used interchangeably. This has been corrected.

The application is now in condition for allowance. Please call or fax me at (301) 603-9071 if you have any questions or comments.

Respectfully submitted,



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CLEAN COPY OF THE CHANGES

In the specification:

Please amend the Page 2, line 19 as follows:

The applicant has developed a process to obtain polyglycolyl urea hydantoin from aromatic diglycinates, the main characteristic of which is that it does not form high risk polluting residual by-products such as HCN emission, obtaining a product that meets the main properties of such commercially available resins such as thermal, mechanical and chemical properties and even improving certain characteristics such as freon resistance of polyesterimide-type enameled products.

Please amend page 3, lines 4 and 6 as follows:

Hereinafter the invention will be described according to the process stages to obtain the polyglycolyl urea hydantoin as well as its use, main objection of the application, in the manufacturing of H-class magnet-wire with improved properties.

The process to obtain polyglycolyl urea hydantoin PGU is divided in main stages: A and B.

Please amend Page 3, line 14 and, as follows:

4) loading methyl isocyanate, diglycinate, solvents and catalyst in the polymerization reactor,

5) obtaining polyglycolyl urea hydantoin resin;

Please change Page 5, line 12 as follows:

a) in a glass or stainless steal matrass, provided with stirring means, reflux column, heating and cooling systems, the following materials are added:

methylenedianiline, methanol and methyl bromopropionate. A C_1 - C_4 aliphatic solvent may be used.

IN THE CLAIMS

6) A process for obtaining polyglycolyl urea hydantoin resin from aromatic diglycinates for insulating electric conductor, in the absence of HCN polluting residues, comprising the following steps:

a) reacting a mixture of methylhaloester and diamine in a C_1 - C_4 aliphatic solvent under reflux conditions at atmospheric pressure and up to solvent reflux temperature;

b) adding a catalyst to the reaction mixture to obtain diglycinate in solution;

c) separating the solvent through atmospheric distillation;

d) crystallizing the diglycinate;

e) filtering and purifying the diglycinate by washing with water;

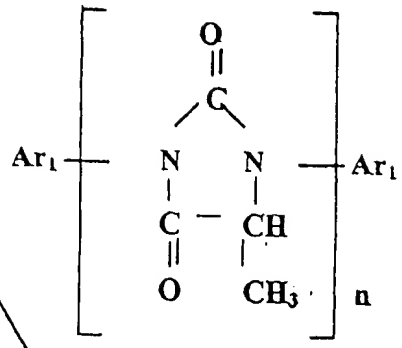
f) drying the methyl diglycinate obtained;

g) reacting the obtained diglycinate with cresylic acid in a reactor until solution is complete;

h) stirring the diglycinate with a methylene diisocyanate, solvent and catalyst;

i) distilling and then cooling the reaction product; and

j) recovering the polyglycolyl urea hydantoin resin having the formula:



I

where Ar_1 is a substituted aromatic compound or a substituted diphenylalkyl, and $2<n<500$, % solids = 28.97.

9) The process according to claim 6, wherein the mixture reflux is conducted for 19 hours.

14) The process according to claim 6, wherein the methylene diisocyanate is stirred at a temperature of 60 C.

15) The process according to claim 6, further comprising adding triethylenediamino or1,4 diazobicyclo (2,2,2) octane catalyzer after step h, at a temperature of up to 180C.

16) The process according to claim 15, further comprising performing distillation at a temperature of 200 C.

18) The process according to claim 6 wherein the product has a viscosity of 44 to 47 seconds a 25 C, as determined in a No. 4 Ford Cup on a polymer sample..

20) The process according to claim 6 wherein the polyglycolyl urea hydantoin obtained has a viscosity (Cp) of 4,800 at 15% solids at 70 C.

23) The process according to claim 6, wherein the methyl methyl diglycinate obtained is dried with hot air at 40 C and corresponds to a sterioisomer mixture with a melting point of 95-116 C, of the following formula II:

II $Ar_1[NH\text{-}CH(CH_3)\text{-}COOCH_3]_2$

24) The process according to claim 6, wherein the residues of mother waters are by-products of the reaction of triethylamine bromohydrate salts which are neutralized with sodium hydroxide and separated through secondary distillation obtaining sodium bromide in solution and 90% triethylamine..

IN THE ABSTRACT

A process for obtaining polyglycolyl urea from aromatic diglycinate to insulate electr electric conductors without forming HCN polluting residues is taught by using a mixture of methylene bromopropionate and methylenedianiline in aliphatic solvents in the presence of a catalyst. The solvent is separated through distillation and filtration of the mother waters and purification through washing with water. The resulting product is mixed with cresyl acid and methylene diisocyanate in the presence of a triethylenediamino catalyzer, and is then heated and distilled to obtain a polyglycolyl

urea hydantoin resin.